Volvo Construction Equipment

R45D, R60D, R70D

Volvo Rigid Haulers 40.8-65.0 t 533-771 hp

A passion for performance

At Volvo Construction Equipment, we're not just coming along for the ride. Developing products and services that raise productivity – we are confident we can lower costs and increase profits for industry experts. Part of the Volvo Group, we are passionate about innovative solutions to help you work smarter – not harder.

Helping you to do more

Doing more with less is a trademark of Volvo Construction Equipment. High productivity has long been married to low energy consumption, ease of use and durability. When it comes to lowering life-cycle costs, Volvo is in a class of its own.

Designed to fit your needs

There is a lot riding on creating solutions that are suited to the particular needs of different industry applications. Innovation often involves high technology – but it doesn't always have to. Some of our best ideas have been simple, based on a clear and deep understanding of our customers' working lives.

You learn a lot in 180 years

Over the years, Volvo has advanced solutions that have revolutionized the use of construction equipment. No other name speaks Safety louder than Volvo. Protecting operators, those around them and minimizing our environmental impact are traditional values that continue to shape our product design philosophy.

We're on your side

We back the Volvo brand with the best people. Volvo is truly a global enterprise, one that is on standby to support customers quickly and efficiently – wherever they are.

We have a passion for performance.

Volvo Trucks

Renault Trucks

Mack Trucks

UD Trucks

Volvo Buses

Volvo Construction Equipment

Volvo Penta

Volvo Financial Services

Drive your costs down

Get the most out of your long-term investment with a low-cost solution. At Volvo, we're committed to driving your operating costs down. That's why we've designed our rigid haulers to reduce fuel consumption and optimize machine availability. Drive your operating costs down with the D-Series rigid haulers, your partner for all mining and quarrying applications.

Selectable shift patterns

Keep performance high and costs low with the integrated shift patterns. Choose the best mode for the task at hand by selecting from Power or Economy. Adapting to varying loads and jobsite conditions, the selectable shift pattern system delivers smooth, consistent gearshifts and low fuel consumption.

The right weight

Go the extra mile with the rigid haulers, featuring a centrally mounted transmission for optimum machine weight distribution. And with a low center of gravity, the well-balanced machines equally disperse all load impacts and structural stresses across the tires. The outcome is superb machine longevity and significantly reduced operating costs. Leave it to Volvo to find the right balance.

Key to a low cost operation

Drive your operating costs with component longevity. To ensure your machine maintains lasting performance, all components undergo rigorous testing under extreme working conditions. Do more in the long haul with proven components from Volvo, durably designed to withstand the test of time.

Designed for distance

Achieve unbeatable long-term value with uptime-enhancing components, such as the transmission retarder. The standard feature reduces the machine's speed, eliminating any unnecessary use of the service brakes. As a result, the life of the primary braking system is extended, enhancing overall machine availability.

DO MORE WITH LESS FUEL

Reduce your number one operating cost with the proven technology built into the D-Series haulers. The electronic integration between the engine and transmission achieve premium drivetrain performance, resulting in smooth gearshift quality and consistent machine momentum. To reduce power losses on the powertrain, the load sensing hydraulics supply hydraulic flow when required.

MOVE MORE – FASTER

Propel your profits with the D-Series haulers, engineered to move material faster and more efficiently. Combining a competitive power-to-weight ratio, effective gearing, and optimum weight distribution, the heavy-duty haulers cut cycle times.

Born to perform

Count on Volvo to get the job done. The all-new D-Series rigid haulers are born to perform. The optimally balanced machines haul more tonnes per hour thanks to the winning combination of power, class-leading tractive force, comfort and productivity-enhancing systems. Meet production targets faster and boost the profitability of your business with Volvo.

Profitable payload

Haul it all with the D-Series rigid haulers from Volvo. The heavy-duty haulers ensure optimum load retention and are fitted with an exhaust-headed body to minimize material carry-back. Thanks to its durable body, manufactured from high impact, abrasion-resistant steel, the D-Series haulers achieves maximum production per operating hour, so you can do more – and earn more.

No feat too steep

No terrain is too deep or steep for the D-Series rigid haulers, offering impressive tractive effort generated by the complete drivetrain design and configuration. By enhancing torque to the low-geared rear axle, the high capacity torque converter supplies high levels of rimpull so you can scale slopes effortlessly.

No compromises on comfort

At Volvo, we believe that a comfortable operator equals a happy operator. That's why we've designed the Volvo cab with convenient and responsive features. The steering accumulator provides uniform steering regardless of engine speed. Customize your comfort with the HVAC feature and operate confidently using light controls that fall easy to hand.

Smart systems

Take your productivity to the next level with a variety of smart systems, expertly designed to optimize job site efficiency, while minimizing your operational costs. To increase the productivity of your existing and future projects, utilize Volvo Site Simulation, which provides valuable information about your machinery, fleet choices and site configuration.

Protection to perfection

Even though they're built to work hard, all Volvo machines are packed full of features designed to make the job safer and easier – and the D-Series rigid haulers are no exception. Safe from the inside out, the rigid haulers come factory-fit with a ROPS-certified body canopy, superb visibility and unrestricted access to all essential service points. With safety built into every design aspect of the all-new haulers, you can rest assured we've got you – and your crew – covered.

Safety as standard

Protect you and your crew thanks to a full spectrum of safety systems. Body hoist inhibitor, for example, ensures the transmission prevents upshifts, while the optional engine overspeed protection automatically slows the machine down to within safe operating limits. Other features include the optional neutral coast inhibitor, which protects the hauler in downhill operations, as well as fail-safe braking and secondary steering systems.

Safe and responsive braking system

Experience fast and safe hauling with the transmission or brake retarder. The standard feature gives you more control of your rigid hauler when traveling up or down steep gradients. When operating downhill or slowing down before crossroads, the system can be activated instantly, for excellent productivity and high levels of safety. Rain or shine, know no limits with the D-Series rigid haulers.

Total access

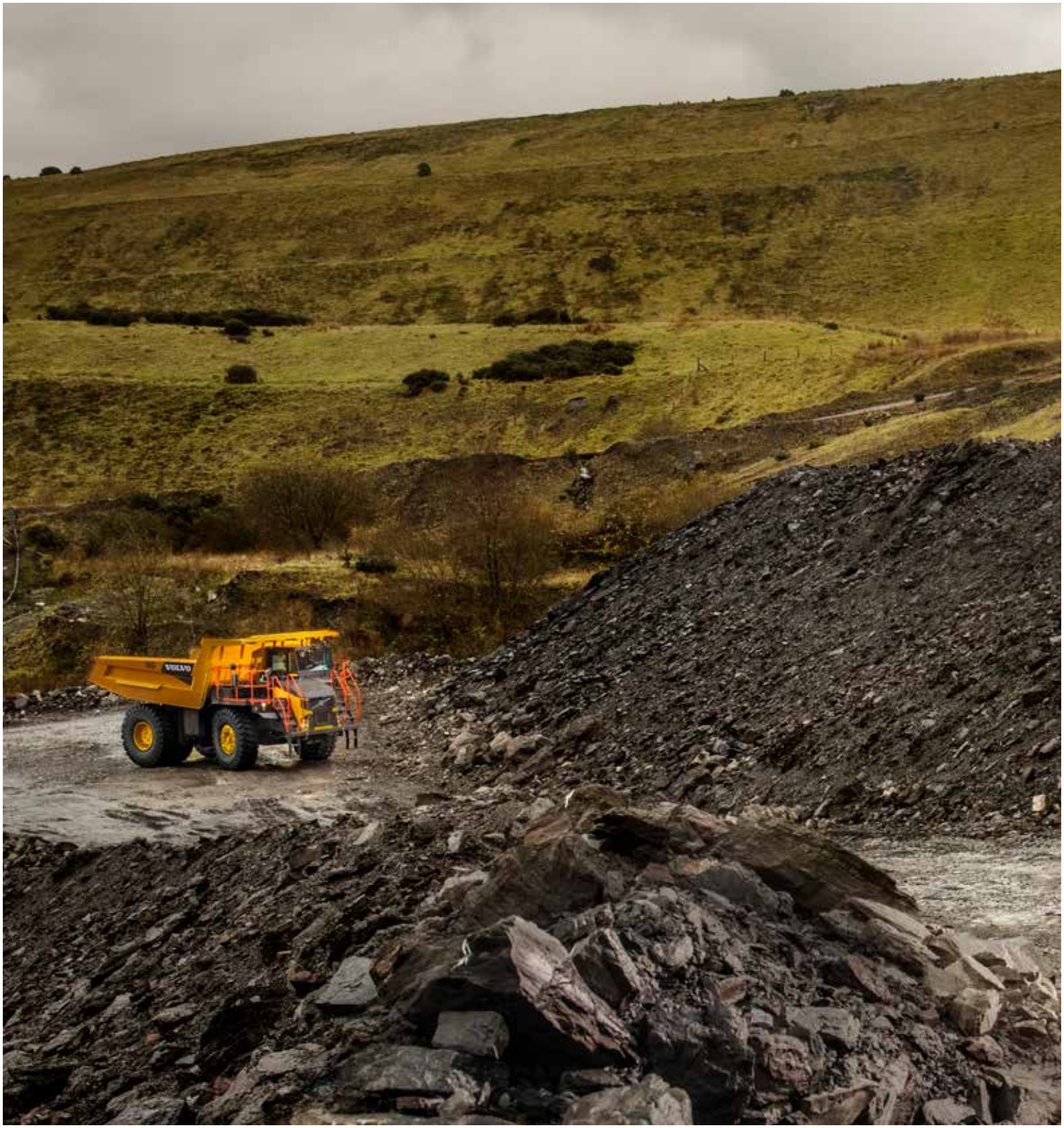
Whether operating or servicing your rigid haulers, gain safe, simple and straightforward entry to the machine using anti-slip steps and secure walkways. From the wide platform or ground level, safely complete essential planned maintenance. For added protection and peace of mind – particularly during servicing – use integral safety locks to isolate the machine system.

The sound of safety

Stay informed of job site activity at all times thanks to a variety of visible and audible safety warnings, communicated via the operator dashboard. Essential machine warning alerts include engine faults, low pressure, temperature, and working outside of safe parameters.

SAFE FROM THE INSIDE OUT

Stay safe in the FOPS-certified Volvo cab, fitted with the ROPS body canopy. But safety doesn't stop there. Inside the cab, benefit from a host of visibility-enhancing details, including the operator seat – located on the left of the two-person cab – and Volvo Smart View. The standard feature combines three exterior-mounted camera views to create a bird's eye view of the machine, displayed via the on-board monitor.



BUILT FOR THE LONG HAUL

Meet the demands of tough job sites with durable D-Series rigid haulers, proven to provide long-lasting performance. The frame assembly incorporates a reserve of structural strength well beyond the industry's requirements. Strong and robust, haulers are engineered with uptime in mind, offering swift and easy maintenance access thanks to a simple and uncomplicated machine design.

Upscale your uptime

Access more uptime with the strong and reliable D-Series rigid haulers. The straightforward and uncomplicated machine design is durably designed to meet the demands of tough job site conditions. Built with industry-leading components and supported by the exclusive Volvo dealer network, the next-generation rigid haulers are proven to achieve unparalleled uptime.

Get back to work fast

Ease of access not only secures safety, but also enhances machine uptime. To simplify servicing, all essential checkpoints points are conveniently grouped and easily reached with minimal tooling. The centrally mounted transmission provides ease of access to the transmission without the need to remove other components. Inside the cab, access top-level diagnostic data for fast analysis and solutions via the operator-friendly dashboard.

Here to support you

The exclusive Volvo dealer network is here to support you whenever you need it. Volvo offers a number of services, local knowledge and global mining experience, including superb parts availability and telematics machine reports. Speak to your local Volvo dealer for more information about uptime-enhancing solutions, such as Volvo Services Agreements (VSA) and extended warranties.

Durable by design

Count on the D-Series rigid haulers to maintain peak performance thanks to a collection of durable components. No matter how harsh the terrain, the high-strength chassis is proven to absorb typical shocks and vibrations from road conditions and loading processes. Meanwhile, the hydraulics are protected to ensure they remain clean against environmental contamination.

Robust protection

Working in challenging conditions means that every component must be protected. With the engine protection derate system, you can say goodbye to unplanned machine downtime. In the event that the engine enters an unsafe operating parameter, the engine control system will send a signal, alerting the operator via a warning lamp on the display. If warnings are ignored, the engine will automatically enter a safe mode, derating on power to prevent further use. Other component protection features include height temperatures, throttle pedal outputs and low coolant level.

Get up close and personal

MOVE MORE – FASTER

Combining power, effective gearing, and optimum weight distribution, our rigid haulers cut cycle times.

No compromises on comfort

Get comfortable with doing more in the Volvo cab, offering HVAC, responsive steering accumulator and easy-to-use controls.

Robust protection

Ensure long component lifecycle with engine protection derate system.

Get back to work fast

Simplify servicing with conveniently grouped essential checkpoints, centrally mounted transmission and operator-friendly dashboard.

DO MORE WITH LESS FUEL

Reduce your number one operating cost thanks to the electronic integration between the engine and transmission, and load sensing hydraulics.

Safe and responsive braking system

Experience fast and safe hauling with the standard transmission and brake retarder, providing total control when operating on steep gradients.

SAFE FROM THE INSIDE OUT

Stay safe in the FOPS-certified Volvo cab, packed with visibility-enhancing features, such as Volvo Smart View.

BUILT FOR THE LONG HAUL

Achieve long lasting performance and uptime thanks to the straightforward and uncomplicated machine design.

Profitable payload

Ensure optimum load retention with the D-Series haulers, fitted with an exhaust-heated body to minimize material carry-back.

Key to a low cost operation

Drive your operating costs down with proven components from Volvo, durably designed to withstand the test of time.

No feat too steep

Navigate gradients with ease thanks to superb tractive efforts offered by the complete drivetrain design and configuration.

Selectable shift patterns

Haul it all thanks to two integrated payload sensitive transmission gearshift patterns: Power and Economy.

Volvo R45D, R60D, R70D in detail

Engine

		R45D	R60D	R70D
Model		Cummins QSK19-C525	Cummins QSK19-C700	MTU-2000TA
Type		Four cycle, emission certified, high pressure common rail, direct injection diesel, water cooled, turbo charged and charge air cooled	Four cycle, emission certified, high pressure common rail, direct injection diesel, water cooled, turbo charged and charge air cooled	Four cycle, emission certified, direct injection diesel, water cooled, turbo charged and charge air cooled
Cylinder/configuration		6 in line	6 in line	V12
Displacement	l	19	19	24
Bore x Stroke	mm	159 x 159	159 x 159	130 x 150
Max. power at	r/min	2 000	2 000	2 100
Gross power (SAE J1995)	kW	392	522	567
	hp	533	710	771
Net power	kW	370	481	511
	hp	503	654	695
Max. torque at	r/min	1 500	1 500	1 350
Gross torque	Nm	2 407	2 981	3 323
Engine emissions		Meets USA EPA Tier 3/CARB MOH 40 CFR 89 non-road mobile machinery directive, stage 3	Meets USA EPA Tier 3/CARB MOH 40 CFR 89 non-road mobile machinery directive, stage 3	Meets USA EPA Tier 2/CARB MOH 40 CFR 89 and EU MOHroads mobile machinery directive, stage 2
Electrical		24 volt negative ground electrical system. Two 12 volt 180 Ah batteries. 9 kW (12 hp) electric starter. Neutral start. 70 A alternator with integral voltage regulator.	24 volt negative ground electrical system. Two 12 volt 180 Ah batteries. 9 kW (12 hp) electric starter. Neutral start. 70 A alternator with integral voltage regulator.	24 volt negative ground electrical system. Two 12 volt 200 Ah batteries. 7.7 kW (10 hp) electric starter. Neutral start. 100 A alternator.
Altitude - electronic derate	m	2 743	1 524	3 100

Steering System

Independent hydrostatic steering with closed-centre steering valve, accumulator and pressure compensating piston pump.
Accumulator provides uniform steering regardless of engine speed. In the event of loss of engine power the accumulator provides steering of approximately two lock-to-lock turns. A low pressure indicator light warns of system pressure below 82 bar (1,190 psi).
Steering conforms to ISO 5010.

		R45D	R60D	R70D
Maximum tire steering angle	°	39	39	42
SAE turning radius	mm	9 475	9 540	9 760
Clearing radius	mm	10 500	10 600	11 200

Axles

Heavy duty axle with full floating axle shafts, single reduction spiral bevel gear differential, and planetary reduction at each wheel

	R45D	R60D	R70D
Standard			
Differential ratio	3.15:1	3.73:1	3.73:1
Planetary reduction	5.66:1	5.80:1	5.80:1
Overall drivetrain reduction	17.83:1	21.63:1	21.63:1

Frame

Full box section frame rails, integral front bumper, closed-loop crossmember and torque tubes of 290 MPa yield strength steel.
Crossmember connections are 655 Mpa (95 000 lbf/in^2) steel castings.

Body

Longitudinal 'V' type floor with integral transverse box-section stiffeners. The body is exhaust heated and rests on resilientimpact absorption pads.
Body floor wear surface: Are high hardness Hardox (360-440 BHN) abrasion resistant steel of yield strength 1 000 MPa (145 000 lbf/in^2)

		R45D	R60D	R70D
Plate thickness				
Floor	mm	19	19	19
Sides	mm	10	10	10
Front	mm	10	10	10
Body volume				
Stuck	m^3	19.6	19.6	29
Heaped 2:1 (SAE)	m^3	26	35	41.5

Tires and Rims

	R45D	R60D	R70D
Tires type	21-35	24-35	24-35
Rims	15	17	17

Consult tyre manufacturers for optimum tyre selection and current + - km/h (ton-mile/h) capacity for application

Drivetrain

		R45D	R60D	R70D
Transmission		Allison 5620 ORS	Allison 6620 ORS	Allison 6620 ORS
Assembly		Mid-mounted in the frame for ease of access with integral torque converter, hydraulic retarder and planetary gearing. Automatic electronic control with softshift feature. Automatic lock-up in all speed ranges.	Mid-mounted in the frame for ease of access with integral torque converter, hydraulic retarder and planetary gearing. Automatic electronic control with softshift feature. Automatic lock-up in all speed ranges.	Mid-mounted in the frame for ease of access with integral torque converter, hydraulic retarder and planetary gearing. Automatic electronic control with softshift feature. Automatic lock-up in all speed ranges.
Electronic control		CEC2	CEC2	CEC2
Maximum speed, forward/reverse				
1st gear	km/h	11.3 / 7.1	9.1 / 6.6	9.5 / 7.4
2nd gear	km/h	16.8 / 12.9	14.6 / 11.8	14.2 / 11.0
3rd gear	km/h	22.4	19.5	18.9
4th gear	km/h	33.4	29.1	28.2
5th gear	km/h	45.2	39.3	38.1
6th gear	km/h	65	57.5	57

Suspension

Front: Volvo manufactured king pin strut-type independent front wheel suspension with self contained, variable rate, nitrogen/oil cylinders.
Rear: Volvo variable rate nitrogen/oil cylinders with A-frame linkage and lateral stabilizer bar.

		R45D	R60D	R70D
Maximum front strut stroke	mm	251	251	235
Maximum rear strut stroke	mm	192	192	193
Maximum rear axle oscillaton	°	6.5	6.5	7.5

Brake system

All hydraulic brake system control. Transmission mounted pressure compensating piston pump provides hydraulic pressure for brakes and steering. Independent circuits front and rear. Each circuit incorporates a nitrogen/hydraulic accumulator which stores energy to provide rapid braking response and emergency supply.
Parking: Rear brakes applied by spring loaded opposing piston on disc pack, hydraulically released.
Secondary: Park push button solenoid control applies service and parking brakes. Automatically applies when engine is switched off. Brakes conform to ISO 3450.
Retardation: Lever control of rear disc brakes or hydraulic retarder in transmission.

		R45D	R60D	R70D
Front brakes type		Dry disc	Dry disc	Dry disc
Front brake diameter	mm	660	710	710
Front brakes lining area	cm²	1 395	1 395	2 788
Rear brakes type		Volvo force oil cooled, multiple disc	Volvo force oil cooled, multiple disc	Volvo force oil cooled, multiple disc
Rear brake lining area	cm²	38 310	47 151	67 390

Hoist

Two body hoist cylinders are mounted between the frame rails.
Cylinders are two-stage with power down in the second stage. Float to chassis and over-centre kick-over control.

		R45D	R60D	R70D
System relief pressure	MPa	19	16	19
Pump output flow rate	l/min	227	227	365
at	r/min	2 100	2 100	2 100
Body raise time	s	13	16.4	13
Body lower time	s	9	16.3	11.5

Service Refill

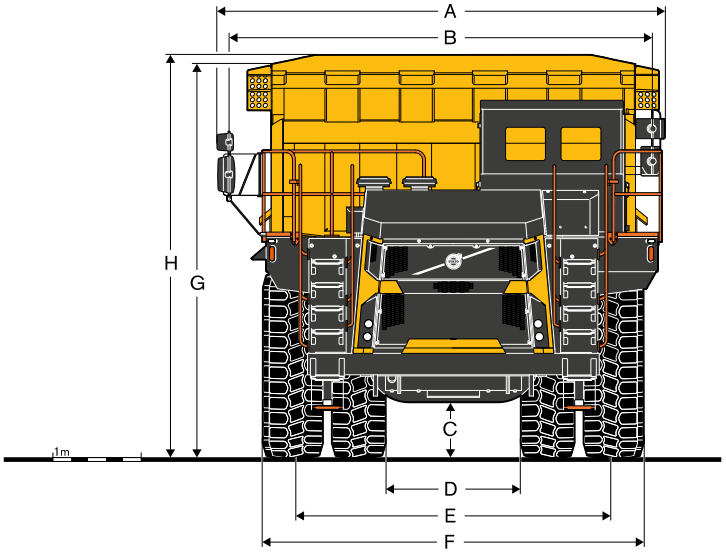
		R45D	R60D	R70D
Engine crankcase and filters	l	60	60	33
Transmission and filters	l	76	92	85
Cooling system	l	126	136	236
Fuel tank	l	606	606	938
Steering hydraulic tank	l	68	68	61
Steering hydraulic system (total)	l	92	92	92
Body hydraulic tank	l	250	250	258
Body hydraulic and brake cooling system (total)	l	385	385	432
Planetaries (total)	l	56	56	43
Differential	l	60	60	52
Front ride strut (each)	l	14	14	25
Rear ride strut (each)	l	17	17	21
Power take off	l	4	4	4

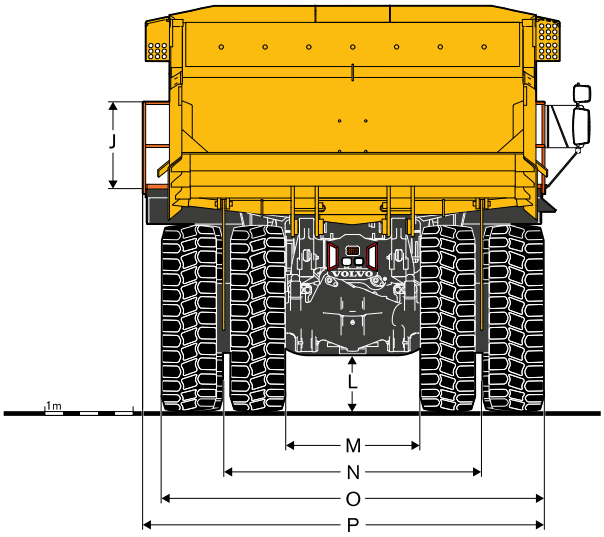
Weights

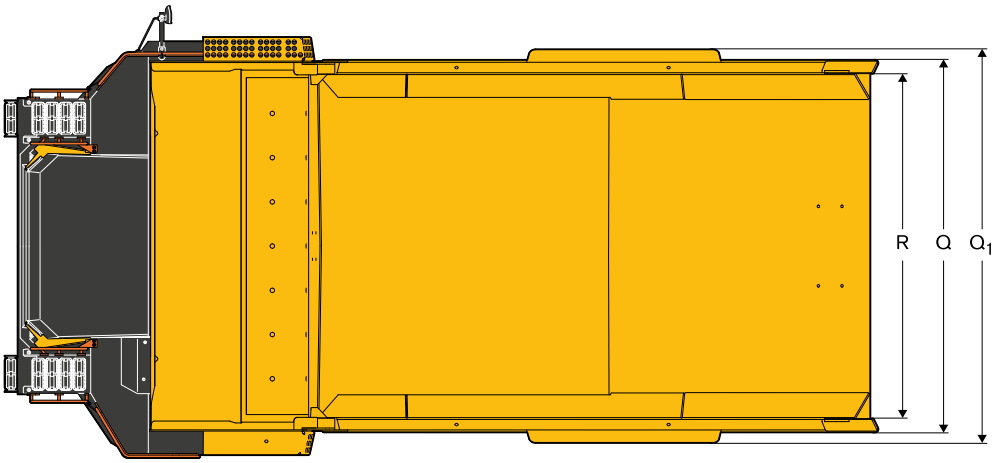
		R45D	R60D	R70D
Chassis with hoists	kg	27 835	30 600	36 190
Body standard	kg	9 300	10 650	11 500
Net weight	kg	36 435	42 048	49 573
Maximum payload	kg	41 000	54 500	65 000
Maximum gross weight*	kg	77 435	96 548	114 573
Weight distribution (axles)		Front / Rear	Front / Rear	Front / Rear
- Empty	%	49 / 51	48 / 52	50 / 50
- Loaded	%	34 / 66	34 / 66	34 / 66

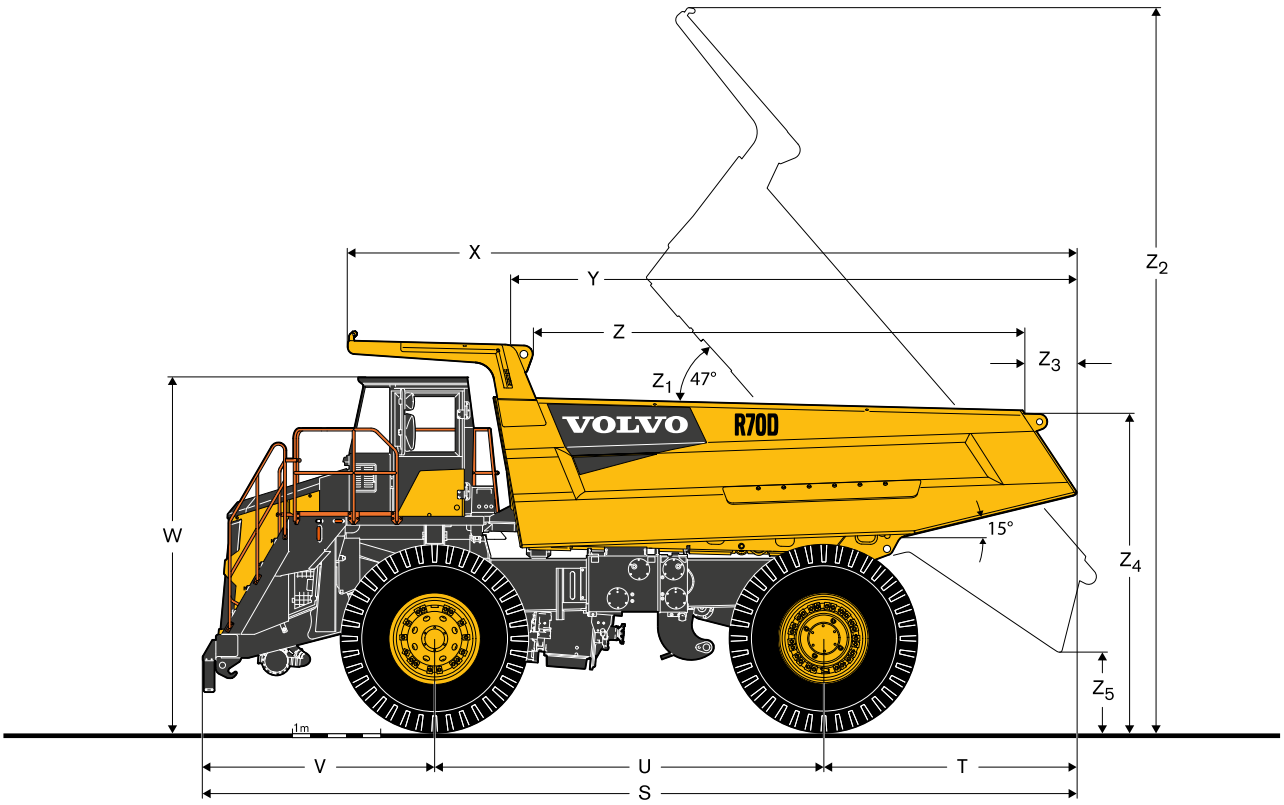
*Maximum permissible gross vehicle weight with options, attachments, full fuel tank and payload.

Specifications









DIMENSIONS

	Unit	R45D	R60D	R70D
A	mm	4 630	4 980	5 290
B	mm	4 370	4 630	4 940
C	mm	585	660	685
D	mm	2 665	2 580	2 970
E	mm	3 325	3 320	3 660
F	mm	3 985	4 060	4 420
G	mm	4 135	-	-
H	mm	4 245	4 440	4 570
I	mm	4 520	4 820	-
J	mm	1 195	1 425	1 536
K	mm	810	950	1 080
L	mm	450	600	600
M	mm	1 520	1 380	1 500
N	mm	2 710	2 900	2 995
O	mm	4 000	4 450	4 445
P	mm	4 240	-	-
Q	mm	3 800	4 270	4 280
Q+1	mm	4 060	4 470	4 940
R	mm	3 530	3 950	3 940
S	mm	8 700	9 130	9 905
T	mm	2 410	2 600	2 945
U	mm	3 940	4 170	4 470
V	mm	2 350	2 360	2 490
W	mm	3 855	3 970	4 190
X	mm	7 417	7 750	8 380
Y	mm	5 485	6 000	6 580
Z	mm	4 700	5 050	6 200
Z+1	°	58	58	58
Z+2	mm	7 645	8 050	8 380
Z+3	mm	430	500	-
Z+4	mm	3 425	3 680	3 785
Z+5	mm	585	580	460

Equipment

STANDARD EQUIPMENT	R45D	R60D	R70D
Engine			
Charge air cooler	•	•	•
Air cleaner	•	•	•
Direct drive fan	•	•	•
Fuel filter/water separator	•	•	•
Sump guard	•	•	•
Operator environment			
2 doors lights	•	•	•
Air conditioning	•	•	•
Body hoist control, servo assisted	•	•	•
CD/radio player	•	•	•
Cup holder	•	•	•
FOPS protection, ISO 3449/SAE J231	•	•	•
Heater/demistor	•	•	•
Horn	•	•	•
Insulation, thermal and acoustic	•	•	•
Interior light	•	•	•
Mirrors	•	•	•
Power port, 24 V & 12 V	•	•	•
Power window (LHS)	•	•	•
360 degree camera visual system	•	•	•
ROPS protection (body cabguard), ISO 3471/ SAE J1040	•	•	•
Seat , operator, air suspension	•	•	•
Seat belt, operator 4-point harness	•	•	•
Seat, trainer	•	•	•
Steering wheel, padded with tilt	•	•	•
Storage compartment	•	•	•
Sun visor	•	•	•
Tinted glass	•	•	•
Wiper and washer, windscreen	•	•	•
Gauges	•	•	•
Coolant temperature	•	•	•
Engine oil pressure	•	•	•
Fuel level	•	•	•
Hourmeter	•	•	•
Odometer	•	•	•
Speedometer	•	•	•
Tachometer	•	•	•
Transmission oil temperature	•	•	•
Warning indicator lights			
Air cleaner restriction	•	•	•
Air filter restriction indicator	•	•	•
Alternator charging	•	•	•
Body up	•	•	•
Brake cooling oil temperature, high	•	•	•
Brakes front, low pressure	•	•	•
Brakes rear, low pressure	•	•	•
Direction indicator	•	•	•
Engine check	•	•	•
Engine coolant level	•	•	•
Engine coolant temperature	•	•	•
Engine maintenance	•	•	•
Engine oil pressure	•	•	•
Engine overspeed	•	•	•
Engine stop	•	•	•
Headlight main beam	•	•	•
In-converter	•	•	•
Parking brake	•	•	•
Retarder active	•	•	•
Steering and brake tank, low oil level	•	•	•
Steering filter restriction	•	•	•
Steering, low pressure	•	•	•
Transmission check	•	•	•
Transmission oil filter restriction	•	•	•
Transmission oil temperature, high	•	•	•

STANDARD EQUIPMENT	R45D	R60D	R70D
Audible alarms			
Brakes front, low pressure	•	•	•
Brakes rear, low pressure	•	•	•
Steering, low pressure	•	•	•
Electrical system			
Alternator, 70 A	•	•	•
Alternator , 100 A	–	•	•
Batteries, 2 x 12 V, 180 Ah	•	•	•
Batteries, 2 x 12 V, 200 Ah	–	•	•
Battery master switch, electrically operated	•	•	•
Direction indicators and hazard warning	•	•	•
Headlights	•	•	•
In-cab diagnostics, engine/transmission	•	•	•
Reverse alarm / reverse light	•	•	•
Side, tail, stop lights (LED)	•	•	•
Transmission			
Body-up reverse interlock	•	•	•
Body-up shift inhibitor	•	•	•
Downshift inhibitor	•	•	•
Filter restriction shift inhibitor	•	•	•
Hydraulic retarder	•	•	•
Neutral start interlock	•	•	•
Power and economy mode selection	•	•	–
Shift energy management	•	–	•
Stall check and limp home selection	•	•	–
Sump guard	•	–	•
Brake system			
Brake retarder (rear)	•	•	•
Front dry disc brakes	•	•	•
Hydraulically actuated	•	•	•
Dual circuits			
OCDB oil cooler	•	•	•
Oil-cooled multiple-disc (rear)	•	•	•
Park brake integral to rear brake pack	•	•	•
Body			
Body down indicator	•	•	•
Exhaust heated	•	•	•
Mud flaps	•	•	•
Operator guard - LHS	•	•	•
Operator guard - RHS	–	•	•
Rock ejectors	•	•	•
Safety locking pins	•	•	•
Tire guards	•	•	•
Other			
Diagnostic pressure test points	•	•	•
Exhaust muffler	•	•	•
Handrails on fenders	•	•	•
Tow points, front and rear	•	•	•

OPTIONAL EQUIPMENT	R45D	R60D	R70D
Engine			
Fast fuel	•	•	–
Inline fuel heater	•	•	•
Operator environment			
Mirrors - heated / electrical actuated	•	•	•
Drivetrain			
Differential - traction bias	•	•	•
Electrical system			
Alternator, 100 A	•	•	•
Auxiliary jump-start receptacle	•	•	•
Beacon - orange cab mounted	•	•	•
Service lighting kit	•	•	•
Ground level isolation switch	•	•	•
Work lighting kit	•	•	•
Telematics	•	•	•

OPTIONAL EQUIPMENT	R45D	R60D	R70D
Body			
Body liner plates	•	•	•
Body side extensions -upon request	•	•	•
Tail gate	•	•	•
Body spill guard	•	•	•
On Board Weighing system	•	•	•
Maintenance			
Auto lubrication system	•	•	•
Quick oil drain kit	•	•	•
Fire suppression system	•	•	•
-40°C artic weather protection	•	•	•

Not all products are available in all markets. Under our policy of continuous improvement, we reserve the right to change specifications and design without prior notice.
The illustrations do not necessarily show the standard version of the machine.

Ref. 20055797_A / English-30 / 2018.03 / RIG / Volvo, Global Marketing